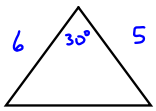
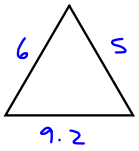
The Cosine Law

i) 

2 sides and a contained angle

ii) 

3 sides

Apr 15-10:13 AM

Cosine Law

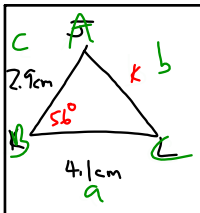
① $a^2 = b^2 + c^2 - 2bc\cos\angle A$

$b^2 = a^2 + c^2 - 2ac\cos\angle B$

$c^2 = a^2 + b^2 - 2ab\cos\angle C$

- all 3 sides
- 2 sides, contained angle (enclosed)

Apr 15-10:20 AM



$k^2 = j^2 + l^2 - 2jl\cos\angle K$

$b^2 = a^2 + c^2 - 2ac\cos\angle B$

$b^2 = 4.1^2 + 2.9^2 - 2(4.1)(2.9)\cos 56°$

$b^2 = 16.8 + 8.41 - 23.78(0.5592)$

$b^2 = 25.22 - 13.30$

$\sqrt{b^2} = \sqrt{11.92}$

$b = 3.5$

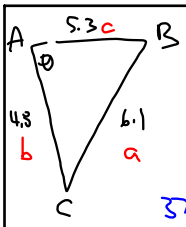
$a = 4.1$

$c = 2.9$

$\angle B = 56°$

$b = ?$

Apr 15-10:22 AM



$a^2 = b^2 + c^2 - 2bc\cos\angle A$

$6.1^2 = 4.8^2 + 5.3^2 - 2(4.8)(5.3)\cos\angle A$

$37.21 = 23.04 + 28.09 - 50.88\cos\angle A$

$37.21 = 51.13 - 50.88\cos\angle A$

$37.21 - 51.13 = -50.88\cos\angle A$

$\frac{-13.92}{-50.88} = \frac{-50.88\cos\angle A}{-50.88}$

$(+0.2736) = \cos\angle A$

$\cos^{-1}(0.2736) = \angle A$

$74 = \angle A$

Apr 15-10:32 AM

Formulas

$a^2 = b^2 + c^2 - 2bc\cos\angle A$

$a^2 - b^2 - c^2 = -2bc\cos\angle A$

$\frac{a^2 - b^2 - c^2}{-2bc} = \cos\angle A$

$\cos^{-1}\left(\frac{a^2 - b^2 - c^2}{-2bc}\right) = \angle A$

Apr 15-10:33 AM

p 299-300

q 2-5, 8

Review & p 314-315 # 1-4, 5a), 6, 7a)b) 8, 9, 10

p 316 1), 2), 6), 8)

Apr 15-10:47 AM

Formulas

$a^2 + b^2 = c^2$

SOH CAH TOA

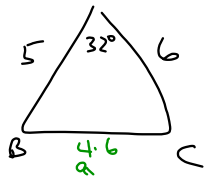
$\frac{\sin A}{a} : \frac{\sin B}{b}$

$a^2 = b^2 + c^2 - 2bc\cos\angle A$

Sum of $\triangle = 180°$

Apr 15-11:24 AM

Solve A



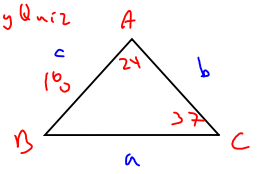
Cosine Law = 4.6

Sine law <b

Sum of $\triangle = 180°$

Apr 20-1:48 PM

Trig Quiz



$\frac{\sin\angle C}{c} = \frac{\sin\angle B}{b}$

$\frac{\sin\angle 37}{18} \quad \frac{\sin\angle 119}{b}$

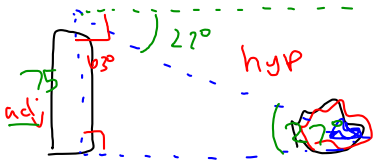
$18(\sin 119) = \sin 37\,(b)$

$\frac{18(0.8746)}{0.6018} = \frac{b\,(0.6018)}{0.6018}$

b

$26.2 = b$

Apr 8-9:46 AM



SOH CAH TOA

$\tan 63° = \frac{O}{75}$

$75(\tan 63°) = O$

$75(1.9626) = O$

$147.2 = O$

The fire is 147.2m from the base of the tower.

Apr 8-9:52 AM

Apr 8-9:59 AM